Unit D: Driving Fundamentals

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I. Introduction – Successful Driving

A fundamental requirement for successful driving, in addition to operational skills, is being aware of the vehicle. The need to become aware of the vehicle can be compared to the natural awareness we each have of the dimensions of our body. For example, if a person was not aware of where their head was in relationship to other things in the environment, she/he would be constantly knocking it against objects. To prevent drivers from constantly "knocking" the bus against objects the driver must know and be constantly aware of its dimensions and understand its operation.

It is a relatively easy task to learn the physical dimensions of the bus, but learning how it operates and achieving a natural awareness of where the vehicle is in relation to the environment takes practice. By the end of the training session, the driver will become much more aware of the vehicle and the essentials for driving that vehicle. However, learning to operate a vehicle safely in a complex highway environment is a life-long experience.

Let us begin that experience by exploring the physical dimensions of the bus, then progress to specific driving fundamentals, which begin with the turn of the key.

II. Definitions of School Buses by Type
Slide 3
a. Type A – A van conversion or bus constructed utilizing a cutaway front-section vehicle with a left side driver's door. The entrance door is behind the front wheels. This definition includes two classifications: Type A1, with a Gross Vehicle Weight Rating (GVWR) less than or equal to 10,000 pounds; and Type A2, with a GVWR greater than 10,000 pounds.
b. Type B – Bus constructed utilizing a stripped chassis. The entrance door is behind the front wheels. This definition includes two classifications: Type B1, with a GVWR less than or equal to 10,000 pounds; and Type B2, with a GVWR greater than 10,000 pounds.
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c. Type C – This school bus is constructed utilizing a chassis with a hood and front fender assembly. The entrance door is behind the front wheels.
d. Type D – This school bus is constructed utilizing a stripped chassis. The entrance door is ahead of the front wheels.

Discussion: Discuss and relate the size of various school buses to other vehicles.

Discuss the dangers involved with operating large school buses.

III. Dimensions of School Buses by Type
Slides 5, 6 **See chart at the end of section**

Discussion: Discuss the importance of knowing the height, weight, width, wheelbase, length and turning radius of each bus.

Discuss what kind of incidents can occur if the driver fails to know these dimensions.

IV. Starting the Bus
Slide 7
1. The driver should adjust the driver's seat so that she/he can operate the pedals, the steering wheel, and other controls effectively, and be able to see all surrounding areas.
2. Adjust mirrors. The inside mirror is used for viewing passengers within the bus and serves as a rear view mirror. The left and right outside rearview mirrors should be adjusted so the driver can see at least 200 feet to the rear. The cross-view mirrors should be adjusted so as to optimize the driver's indirect view of the children in the "danger zone."
3. The driver's seat belt must be fastened before the bus is put in motion.

4. The parking brake should be set so that the bus will remain stationary.
5. Place the transmission (manual and automatic) in neutral. This is done primarily because the driver's foot could slip off the clutch. If it were in gear, the bus would move forward, possibly hitting a pedestrian, or damaging another vehicle.
6. Before starting a bus with a manual transmission, depress the clutch pedal to relieve some strain on the battery. Depress the accelerator pedal. Use the hand choke if necessary.
7. The key should be turned to start the engine. The engine should be warmed slowly, never "revved," while it is cold. If the throttle is used while warming the engine, it should not be set so that the engine runs at excessive "rpm's". The engine warming period should be short to conserve fuel, and the throttle should be disengaged before starting out.

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8. Gauges should be checked to detect malfunctions. The ammeter should be in plus direction. On those buses equipped with a voltmeter rather than an ammeter, the gauge should show 12-14 volts. The oil gauge needle should be in the center of the dial. The fuel gauge needle should indicate that there is enough fuel to complete the run. On those buses with air brakes, the air-pressure gauge should indicate enough pressure in pounds per square inch for braking. There should be an audible or visible warning when the pressure is below approximately 60 pounds per square inch.

V. Starting and Accelerating

Slide 9

If the bus has a manual transmission, the driver should get the feel of the gearshift patterns; in most instances, they are indicated on the gearshift knob.

1. Place the foot on the service brake pedal and then release the parking brake.
2. Depress the clutch to put the vehicle in gear.
3. Place the gearshift lever in drive for automatic transmission and in second gear for manual transmission (for manual use first gear with a heavy load, or when the bus is on an incline). With a manual transmission bus pulling off in a gear higher than second causes strain on the engine and clutch.

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4. Use the mirrors to check approaching traffic and the area surrounding the bus.
5. Give a signal indicating readiness to enter the flow of traffic. If any significant time lapses, recheck traffic before moving.

Slide 11

6. Depress the accelerator and release the clutch slowly and smoothly until the bus begins to move. Remove the foot from the clutch. Continually touching the foot to the clutch or "riding" the clutch causes unnecessary clutch wear. Shift to the next higher gear by depressing the clutch, letting up on the gas, and shifting to the next gear.

Release the clutch smoothly and depress the accelerator. Proceed in this manner until high gear is reached. Avoid skipping gears. This could cause wear on the engine and clutch.

Before starting down a hill, shift into the same gear that would be used going up the hill.

VI. Relative Shift Speeds

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Up shifting

From 2nd to 3rd Gear	1 – 12 MPH
From 3rd to 4th Gear	12 – 20 MPH
From 4th to 5th Gear	25 – 30 MPH

Down shifting

From 5th to 4th Gear	30 – 35 MPH
From 4th to 3rd Gear	25 – 30 MPH
From 3rd to 2nd Gear	5 – 10 MPH

When it is necessary to stop a bus with a manual transmission, depress the foot brake, and just

before stopping the vehicle, depress the clutch. If the vehicle is to be parked, set the parking brake, put the gearshift lever in low, and turn off the ignition.

VII. Stopping a Bus with a Manual Transmission

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Stopping a school bus smoothly is a sign of a good driver, especially if the bus has a manual transmission. Using correct stopping procedures not only stops the vehicle efficiently, but also saves wear on the braking system.

1. Stopping in a Low Gear (10 MPH or Less)
a. Release accelerator
b. Apply brakes gradually by increasing pressure
c. Depress clutch pedal
d. To prevent jerking, reduce brake pressure slightly, but not completely, just before coming to a stop
e. Shift gear selector into neutral
f. Release clutch and remove foot from the pedal

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2. Stopping in Cruising Gear
a. Release accelerator and depress brake pedal
b. When proper speed is attained for any gear, downshift to next lower gear to reduce heat build-up and reduce excessive brake wear
c. To prevent jerking, reduce brake pressure slightly, but not completely, just before coming to a stop
d. Shift gear selector lever into neutral
e. Release clutch and remove foot from pedal

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During normal braking, whether the vehicle has a manual transmission or an automatic transmission, brakes should be applied gradually by increasing pressure. Smooth stopping requires the driver to think about their stop and plan for it in advance.

The distance it takes to stop a school bus includes the distance the vehicle goes from the time the eyes see a problem to the time the brain knows it – this is perception distance. Additionally, stopping distance includes the distance traveled from the time the brain tells the foot to move from the accelerator until the foot pushes the brake – this is reaction distance.

Lastly, stopping distance includes the distance it takes to stop once the brakes are applied – this is braking distance. Therefore, the vehicle's overall stopping distance is the combination of perception distance, reaction distance, braking distance and brake lag.

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It is important to remember that the braking distance increases with speed. As the speed of a vehicle is doubled, the braking distance is increased by about four times. Traveling 40 mph requires four times more braking distance than required at 20 mph.

Steering and Turning

Slide 17

To be classified as an expert driver the driver must be able to assume the correct steering position, prepare appropriately for the turn, make all turning maneuvers correctly and smoothly, and re-enter traffic with the appropriate caution.

Before making a turn, the driver should activate the appropriate signal and exercise caution.

VIII. Steering

1. Grasp the steering wheel with both hands. The left hand should be at approximately the 9 o'clock position; the right hand should be at approximately the 3 o'clock position. The hands should be on the outside of the steering wheel and the thumbs on the top or outside of the wheel.
2. The eyes should be focused on the road. The driver should always be checking the environment ahead, about the distance the vehicle would travel in 12 to 15 seconds, (that's about one-fourth of a mile at highway speeds). The driver should also look in the side and rearview mirrors to see that the road is clear.

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Note: The hand-over-hand method of steering should be used. The push-pull method is preferable for transit type buses.

IX. Turning

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Code of Virginia (§46.2-835)
Code of Virginia (§46.2-846(a) (1))

1. Making a right turn

When the entire bus clears the curb at the corner and stays as nearly as possible in its own lane of traffic, the operator has made a perfect right turn. To make this perfect turn, the operator must consider the following factors: where to stop prior to the turn if a stop is necessary, how far to angle out when leaving the curb, where to begin the turn, the speed of the bus while making the turn, and how to straighten out after making the turn.

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Follow these procedures when making a right turn under normal conditions:

a. Check the traffic surrounding the bus.
b. Give a signal within the designated distance for the current speed.
c. Move to the far right-hand lane and slow down.
d. Observe and obey all traffic signs and signals.
e. Reduce speed to 10 mph or less; turning slowly gives the driver and others time to avoid problems.
f. When making a turn at an intersection allow sufficient space to avoid running over the curb or striking parked vehicles.
g. Check for pedestrians and check traffic left and right – yield to all pedestrians and vehicles.

Slide 20

h. Turn wide as needed to complete the turn, and don't turn wide to the left at the beginning of the turn unless necessary.

Slide 21

i. Complete the turn; never change gears while making a turn.
j. Deactivate the signal light after completing the turn, if necessary.

Discussion: Discuss the dangers involved when making right hand turns. Cite examples.

2. Making a left turn
Code of Virginia (§46.2-846(2) (3))

Slide 22

When the bus stays as nearly as possible in its own lane of traffic, the operator has made a perfect left turn. To make this perfect turn, the operator must consider the following factors: where to begin the turn, when to begin the turn in relation to oncoming traffic, the speed of the bus when making the turn, and how to straighten out after making the turn.
Follow these procedures when making a left turn under normal conditions:

a. Check the traffic surrounding the bus.
b. Give a signal within the designated distance for the current speed.
c. Move to the far left-hand lane or the right-hand turn lane if there are two turning lanes, and slow down.
d. Observe and obey all traffic signs and signals.

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e. Reduce speed to 10 mph or less; turning slowly gives the driver and others more time to avoid problems.
f. When making a turn at an intersection allow sufficient space to avoid running over the curb or striking parked vehicles.
g. Check for pedestrians and check traffic left, right and straight ahead – yield to all pedestrians and vehicles.

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h. Reach the center of the intersection before starting the turn.
i. Complete the turn – never change gears while making a turn.
j. Deactivate the signal light after completing the turn.

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Discussion: Discuss the dangers involved when making left hand turns. Cite examples.

X. Backing

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A driver must be able to back the bus in a straight line without scraping or hitting stationary objects.

1. Activate the four-way hazard lights at least 100 feet before stopping.
2. Stop the bus in the proper position to back.
3. Get out and walk around the vehicle (if it is safe to do so). Check clearance to sides and overhead.
4. Post a lookout on the inside - back of the bus to give warning of obstacles, approaching persons or other vehicles.
5. Before and during the backing maneuver constantly check all mirrors to see that the way is clear – if in doubt don't back.

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6. Tap horn.
7. Back slowly and smoothly.

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Do not back the bus unless it is absolutely necessary. Backing causes many collisions.

If backing is absolutely necessary, remember this rule:

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LOAD BEFORE BACKING and
BACK BEFORE UNLOADING

Discussion: Discuss the dangers involved when backing. Cite examples.

XI. Turnarounds

Slide 29

Making a turnaround is not recommended. It is preferable to drive around the block rather than make a turnaround. However, because of the environment some drivers have no other choice but to turnaround. When such a maneuver is necessary, it should be carried out with extreme caution.

1. Activate the four-way hazard lights at least 100 feet in advance of a turnaround.
2. Give a brake signal indicating an intention to stop and stop the bus in proper position on the roadway.
3. The bus should be stopped one bus length ahead of the road it is to be backed into.
4. Check all traffic in the vicinity of the bus.
5. If traffic is present, wave it around the bus, if safe.
6. Back into the road checking mirrors constantly and using a safety patrol or designee observing from the inside back of the bus to give warning of obstacles, approaching persons or other vehicles – if in doubt don't back.
7. After checking traffic, re-enter the roadway with caution.

If a turnaround is absolutely necessary, remember this rule:

LOAD BEFORE BACKING and
BACK BEFORE UNLOADING

Following this rule, the driver will always have the pupils on the bus when backing.

XII. Parking the Bus

Slide 30

When parking the bus, follow these simple procedures:

1. When the bus is parked on level ground or an upgrade, shift the gear to low and turn the front wheels away from the curb.
2. When the bus is parked on a downgrade, shift the gear to reverse and turn the front wheels toward the curb or the edge of the road.

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3. Turn off the ignition and remove the key.
4. Release the clutch and set the parking brake.
5. Whenever possible the driver should park the bus in a manner that eliminates backing.

XIII. Starting and Stopping on a Hill with a Manual Transmission

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1. Starting on a Hill

a. Place the right foot on the brake and the left foot on the clutch with the gear shift lever in first gear. Release the clutch slowly until the engine begins to labor. Parking brake may be used in place of the service brake.
b. Hold the clutch at this point.
c. Release the brake pedal and place the foot on the accelerator giving enough throttle to hold the weight of the bus without drifting backwards.
d. Release the clutch smoothly until it is all the way out, giving enough throttle to pull the bus up the hill.

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2. Stopping on a Hill – Upgrade or Downgrade

a. Observe all the traffic in the immediate area.
b. Make sure there is enough room between the bus and other vehicles.
c. Downshift, if necessary.
d. Depress the brake smoothly.
e. Depress the clutch.

XIV. Position on the Roadway

Slide 34

School bus drivers must be careful to stay in one lane for normal driving, not straddling the lane marker lines or driving in the center of an unmarked roadway or obstructing more than one lane.

1. Use parking lanes only for emergency stopping; stay on the hard (improved) surface.
2. Proceed in the farthest lane to the right, unless the driver intends to pass or turn to the left.
3. On unmarked roads, position the bus to the right of the center of the road. Special care should be practiced on unmarked roadways where hills restrict sight distance. Stay sufficiently to the right side of the road to avoid potentially out of position approaching vehicles.
4. Often rural roads are narrow, have weak outer edges and soft shoulders. Care should be taken to avoid these weak outer edges which may give way under the weight of the bus forcing it onto the soft shoulder. Also on rural roads be on the lookout for high crowns (road's center higher than its outer edges), pot holes, and farm vehicles.
5. Keep a safe following distance – one second for every 10 feet of vehicle length under 40 mph.

XV. Entering the Flow of Traffic

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Caution must be exercised when entering the flow of traffic. Remember that a school bus cannot accelerate rapidly.

1. Before entering a road, stop at the point of entry.
2. Activate the appropriate turn signal.
3. Check to determine that there are no pedestrians or other obstructions in the path of the bus.
4. Check the mirror to determine that all passengers are seated.
5. Check front, rear, sides, mirrors, and "blind spots."
6. Yield the right-of-way to vehicles already on the road.
7. Look for a suitable gap in traffic, and when safe, using the appropriate gear accelerate smoothly into the road.
8. Deactivate the turn signal when correct lane position is established, if necessary.

XVI. Intersections

Slide 36

Approach intersections with caution and observe all surrounding traffic. The driver should be prepared to stop if necessary even though they may have the right-of-way.

1. When two vehicles approach or enter an uncontrolled intersection at approximately the same time, the driver of the vehicle on the left shall yield the right-of-way to the vehicle on the right.
2. When two vehicles approach an uncontrolled "T" intersection at approximately the same time, the driver of the vehicle on the

highway that intersects but does not cross the other highway shall yield the right-of-way to any vehicle traveling on the other highway.
3. If the driver intends to turn left at an intersection not controlled by a left turn signal she/he shall yield the right-of-way to any vehicle coming from the opposite direction if it is so close as to cause a hazard.
4. Give the right-of-way to all pedestrians.
5. Obey all traffic signs, signals, law enforcement officers and uniformed school crossing guards. Police officers and crossing guards take precedence over traffic control devices.

XVII. Following another Vehicle

Slide 37

Following another vehicle too closely can cause an accident. A driver who follows too closely does not have enough time or distance to handle emergency situations.

Collisions occur frequently because drivers do not allow a safe stopping distance between their vehicles and those in front of them. If the vehicle ahead suddenly swerves, slows, or stops, the driver behind cannot stop quickly enough to avoid a collision.

As a rule, a safe following distance is one second for every 10 feet of vehicle length at speeds below 40 mph. At greater speeds add one more second for safety. For example, when driving a 40-foot vehicle, the driver should leave 4 seconds between the bus and the vehicle ahead. Over 40 mph, she/he needs 5 seconds.

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Outside cities and towns, keep at least 200 feet behind other buses and trucks – never follow another vehicle closer than one bus length.

Conditions such as wet roads, fog, snow, and ice will increase stopping distances. Following distances must be longer whenever a driver encounters conditions such as these. A driver who stays alert, cautious, and follows at a safe distance can better avoid collisions.

Discussion: Discuss the dangers involved when following vehicles. Cite examples.

XVIII. Passing

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Overtaking and Passing

Generally, the school bus driver will not have to overtake and pass other vehicles. But when it is necessary, the driver should pass only where it is permitted, pass on the left at a safe distance and keep in mind the following:

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1. Check for no approaching traffic and that traffic following is not rapidly overtaking and attempting to pass the bus.
2. Indicate the intention of passing by giving a left-turn signal in advance; check all "blind spots".
3. Use left turn signal.
4. When all is clear, quickly move to the left-hand lane.
5. Increase the speed of the bus and pass traffic at a safe distance.
6. After passing, check mirrors to make sure the bus has cleared the vehicle and the driver can see the entire front of the overtaken vehicle.
7. Signal to return to the right lane and check "blind spots".
8. Return to the right lane and resume speed.

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9. Avoid passing or running side-by-side with another bus on the highway.

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10. The driver should never pass another vehicle:

a. If it is weaving (sound the horn, and increase the following distance)
b. When it is passing pedestrians, cyclists or animals
c. Signaling or otherwise indicating a left turn
d. On a hill, curve, intersection, or when a railroad crossing is in view

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XIX. Being Overtaken and Passed
Code of Virginia (§46.2-842)
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Except when overtaking and passing on the right is permitted, the driver of an overtaken vehicle shall give way to the right in favor of the overtaking vehicle and shall not increase the speed of his vehicle until completely passed by the overtaking vehicle.

Remember:
1. Stay in the right lane.
2. Continue at the same speed, or decrease vehicle speed to aid the passing vehicle.
3. Allow the overtaking vehicle to pass.

Note: If driving on a narrow road and traffic is backed up, pull to the side of the road at a safe place and let the vehicles behind pass. (Do not pull off onto the shoulder of the road unless a pull off area has been prepared.)

XX. Railroad Crossings
Code of Virginia (§46.2-884; 886)
Slide 44
Major tragedies can be avoided if proper safety procedures for crossing railroad tracks are followed. Always remember to stop, look and listen, and proceed as follows:

1. Tap the brake lightly as you approach a railroad crossing to warn other drivers the bus is about to stop.
2. Check mirrors.
3. Activate the four-way hazard lights.
4. Stop within 50 feet, but not less than 15 feet from the railroad crossing.
5. Put the bus in a gear that will enable it to cross the railroad tracks without stalling.
6. Keep the children quiet, and be sure all heater and defroster controls are in the off position.
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7. Open the entrance door and the driver's window.
8. Turn off all warning lights (non-sequential warning light system).
9. Listen and look carefully in both directions – be alert to multiple tracks. Check mirrors.
10. If a train is approaching hold the bus in its position and set the parking brake.
11. When it is safe to cross, close the entrance door and turn off the four-way hazard lights.
12. Cross the railroad tracks in a gear which allows you to cross the rails completely without changing gears.

Discussion: Discuss dangers in which the bus may not have enough room to clear the tracks completely once crossed. Traffic or traffic control may inhibit safe clearance.

Note: The train will not only cover the track, but its cars will extend over the track about 3 feet on both sides.

Note: Buses do not need to stop at a railroad crossing where a law enforcement officer or traffic control device directs traffic to proceed.

XXI. Speed Limits for School Buses
Code of Virginia (§46.2-871)
Virginia Administrative Code
(§8VAC20-70-30)
Slide 46
School buses should be operated within posted speed limits and consideration should be given to current road conditions. In addition the following must be observed:

The maximum speed limit for school buses shall be 45 miles per hour or the minimum speed allowable, whichever is greater, on any highway where the maximum speed limit is 55 miles per hour or less, and 60 miles per hour on all interstate highways and on other highways where the maximum speed limit is more than 55 miles per hour.

XXII. Driving on School Grounds
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Each school division has someone designated to supervise students while they are on school grounds. But even though there are rules and

people to enforce them, students sometimes disregard them.

"End of school day" or "after school" driving is of particular concern. This is due to students that are anxious to get on the bus and go home. They may not be paying close attention. Bus drivers should be especially cautious at all times when driving on school grounds.

1. Always stay alert and proceed slowly and cautiously while driving a bus on school grounds. If an emergency occurs, an alert driver may be able to prevent a disaster by bringing the slowed vehicle to a quick stop in a short distance.
2. Each bus is required to stop at the "designated place" for loading and unloading. No other place should be used.
3. Drivers should follow the "rules of the road" on school driveways as on roadways.
4. Bus drivers should not deactivate traffic warning lights when loading or unloading pupils on school driveways.
5. Drivers shall not pass other buses while they are loading and unloading.
6. School bus drivers should leave the school in a safe and orderly manner, without following other buses too closely.
7. When a bus departs the school, it must stop before entering the roadway, unless controlled by a traffic officer or other traffic control device.
8. A driver should be extremely careful and alert at all times while operating a school bus. When operating a bus near pedestrians the driver should anticipate potential problems that may be encountered.

Remember: Do not back the bus unless it is necessary.

XXIII. Driving Under Special Conditions
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Most drivers learn how to operate motor vehicles under ideal conditions; but when unfavorable road, lighting, traffic, or weather conditions occur they sometimes run into trouble.

Special conditions put special responsibilities on the driver. The expert driver modifies driving approaches under unfavorable driving conditions. For example, the expert driver will reduce the speed of the bus when stopping distance has been increased by inclement weather.

In all driving environments the driver is responsible for the safety of the passengers and the bus. This is a difficult task since the driver operates the school bus over many types of roads and in varied conditions. It is necessary to be constantly prepared to adapt driving habits to the circumstances encountered. To do this requires a large part of the driver's attention being focused on the roadway and the traffic, especially while driving under special conditions.

1. Driving on Rural Highways

Many miles of school bus travel occur on suburban or rural roads. These roads vary from standard-width, hard-surfaced roads to narrow, gravel-, crushed rock-, or dirt-surfaced.

Rural roads are generally narrow and often have little or no shoulder. With buses being 8 feet wide, the potential for crashes on these roads increases.

One of the great hazards on such roads is the condition of their shoulders. During wet weather the shoulders may become soft and give way under the school bus. A wash-out may also occur leaving the shoulder lower than the road's surface. When these conditions are likely to occur, the driver should avoid pulling too far to the right.

Hills and rises are another source of danger. Many motorists tend to drive toward the center of the road. School bus drivers approaching a hill or grade should decrease speed and pull to

the right as far as possible to minimize the potential for a collision with an approaching vehicle driving over the center. This is especially critical on curves, and where dips in the road reduce sight distance.

Be on the lookout for blind and uncontrolled intersections and driveways. These occur more frequently in a rural setting because of foliage near the road edge, and because of the increased incidence of sharp curves and rises. Be aware of these locations, approach them prepared and reduce speed.

2. Urban Driving

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Driving in an urban setting requires constant vigilance due to the large frequency of intersections, other motor vehicles, pedestrians, and traffic control devices, all of which are sources of potential conflict. The driver should allow enough driving space and time to make good decisions.

In heavy city traffic, the driver may find escape routes limited. During peak traffic hours, the driver may be hemmed in by other vehicles. In this type of traffic, the driver should increase the distance between the bus and the vehicle ahead, giving room to see, maneuver, and stop.

School bus drivers must always keep their vehicles in the proper lane of traffic. In city traffic, it's generally best to travel in the right-hand lane. On multi-lane highways, the choice of lanes depends on travel intentions. If lanes are not marked, the driver should imagine that they exist and keep the bus in its proper place.

The speed of the school bus should be consistent with the speed of other vehicles traveling in urban areas. If the bus is driven too fast or too slowly, it presents a traffic hazard to other drivers. The distance between the bus and other vehicles should be sufficient to permit the bus to stop in emergencies without a collision.

3. Twilight and Night Driving

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Proper vehicle preparation is of importance when driving during the twilight or the night. Driving at twilight is more dangerous than driving during daylight. During twilight hours, shadows increase the difficulty of judging speed and distance of other vehicles, and some drivers may overestimate their ability to see clearly. At twilight, as soon as light begins to fade, turn on the headlights, not parking lights, to make the vehicle more visible to others. The driver must use headlights from sunset to sunrise, but be aware that some other drivers may not have turned on their lights.

To improve the driver's ability to see and drive during darkness the driver should:

a. Use the taillights of the vehicles ahead to determine a safe following distance, particularly in a rural area.
b. Be alert to the sudden appearance of dark or dim objects on the highway.
c. Watch for slow-moving or unlit vehicles, pedestrians, animals, and potentially highway conditions.

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d. When approaching a pedestrian or animal at night

- Put lights on low beam
- Decelerate
- Prepare to take evasive action should the pedestrian enter the roadway

e. When approaching an animal refuge or crossing area, decelerate and watch for animals on or near the roadway.
f. Never drive so fast that she/he cannot stop within the distance that be can seen ahead with driving lights – Never out-drive headlights.
g. If drivers of oncoming vehicles refuse to dim their head lights:

- Decelerate
- Keep the headlights on low beam

- Avoid looking directly at the vehicles bright lights
- Focus the eyes on the right side of the roadway, beyond the oncoming vehicle

Note: Do not flash the headlights.

h. Night driving procedures

• Before starting, check to make sure that all interior and exterior lights on the bus are working and are clean.
• Keep headlights on low beam in cities and towns, in fog or haze and when approaching other motorists on a highway. Use high beam headlights on highways when no other vehicle is coming toward you within 500 feet ahead.
• When following, use low beams whenever you are within 200 feet of the vehicle ahead. Code of Virginia (§46.2-1034)
• Keep interior overhead lights off while driving.
• See that lights on the instrument panel are not so bright as to interfere with vision.
• Schedule trips to allow for increased night driving time.

XXIV. Expressway Driving
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Driving on expressways differs in many respects from the stop-start routine of driving on other roads.

1. How to get on the expressway

a. Be sure that the driver is entering the correct ramp of the exit. If the driver makes a mistake, have she/he drive on to the next exit and get off. Never back up to or on an entrance ramp.
b. Once on the entrance ramp, check traffic around and on the expressway. The driver should begin looking over their shoulder for a gap in the traffic large enough for their vehicle to fit into without crowding anyone. Turn on the proper turn signal and continue to check for an opening.
c. As the ramp straightens, the driver should accelerate to the speed of the expressway traffic so that she/he can blend in smoothly. Continue to watch the gap in traffic. Remember: the driver must yield the right-of-way to traffic already on the highway.
d. If the driver judges speed and distance correctly, the gap should be near them as she/he reaches the end of the acceleration lane. If the driver is traveling at the speed of traffic, she/he can make a simple lane change and merge with the flow of traffic. However, since the school bus is often traveling slower than the speed of traffic, merging is more difficult, so practice extreme caution. If there is a solid white line between the entrance ramp and the expressway, the driver has to wait until she/he has passed it before merging. Caution: Watch for vehicles in front of the bus in the acceleration lane that may have stopped or slowed without warning.
e. When merged, the driver should cancel the turn signal and adjust their speed. Establish a good following distance and try to maintain a cushion of space to the sides and rear.

2. How to drive on expressways

Drive smoothly at a steady speed. Give drivers of following vehicles the opportunity to pass the bus safely. Choose a lane and stay in it. Wandering from one lane to another is dangerous on a high-speed expressway. In general, keep to the right. If trucks and merging traffic make this lane hazardous, move to the next lane. Whether she/he is changing lanes, passing, entering, or exiting on an expressway, always use turn signals and check traffic to the rear and sides.

The driver should leave enough room between the vehicle and the one ahead so that she/he has time to react. Apply the "one-second for every 10 feet of bus plus one-second" following distance rule. If the bus is 40 feet long there should be a five-second gap (four-seconds for the 40 feet plus one-second) between the bus

and the vehicle in front. If a vehicle cuts into the space ahead of the driver, the driver must slow down a little and re-establish a safe following distance.

3. How to deal with emergencies on an expressway

One of the most dreaded emergencies that may be encountered on an expressway is a vehicle approaching from the wrong direction. If the driver is confronted with this situation, she/he should blow the horn and blink the lights. Drive the bus as far as possible to the right side of the road.

If the driver is faced with an emergency on an expressway and must stop the bus, she/he should signal for a right-hand turn and decelerate. Drive the bus completely off the right side of the road -- all four wheels and fenders. If circumstances warrant, evacuate the bus, ensuring that your passengers are a safe distance from danger.

4. How to get off the expressway

a. About a half mile before the exit, signal and move into the lane nearest the exit. (If the driver is on a special activity trip, your pre-trip plans should indicate which exits will be taken.) Move into the deceleration lane. This is an extra lane that allows the bus to slow down without interrupting the flow of traffic on the expressway, and guides the bus onto the exit ramp. Don't slow down until the bus is in the deceleration lane.
b. In the deceleration lane, cancel the turn signal and start braking. As the bus slows down, maintain a cushion of space forward and aft of the bus. The driver should be aware of the conditions behind the bus.
c. The exit ramp speed will be posted. Adjust speed accordingly.
d. As the driver leaves the exit ramp and enters traffic, remember that she/he is driving in more complicated, dangerous conditions than found on expressways. Traffic will probably be heavier, traveling in two directions, with intersections, pedestrians and cross-traffic. The driver should be alert and adjust driving at lower speeds.

5. Defensive driving tactics for expressways
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Search ahead and **Identify** signs of trouble. **Predict** what may be encountered, such as a cluster of cars in the distance (especially if the driver can see brake lights) which may indicate slow-moving or stopped traffic. **Decide** what action the driver may have to take, such as reducing speed or stopping. Then **Execute** the appropriate action.

Look to the rear and sides for signs of trouble, and look for road and weather conditions that may pose a problem. The driver should be continually searching and identifying possible trouble; predicting what the situation may bring; deciding what to do given the situation; and, preparing to execute the appropriate action.

XXV. Activity Trips
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School bus drivers may be called on to make special trips with various groups. Several matters about driving on a field trip are different from those encountered on a regular school bus route.

Here are some things that should be considered:

1. Go over the route prior to the trip. Use a map or drive a private vehicle to the destination.
2. Prepare any necessary reports, and perform a pre-trip inspection.
3. When loading for special trips, check to see that only students and authorized adults board the bus.
4. If band instruments or other large objects are to be transported, see that they do not block the aisle and emergency exits; see that these items are properly secured and do not compromise safety.

5. Request the teacher in charge to be responsible for maintaining order on the bus.
6. When the destination has been reached, make sure all students know which bus they are to board and at what time.
7. Be certain that no students board the bus unless authorized by the bus driver or teacher in charge.
8. Be certain that there is available parking space and that the bus will be secure at its destination.
9. Eating and drinking on the bus should be prohibited, except at designated rest stops.
10. Park in a location which will reduce the likelihood of requiring you to back the bus.
11. Adhere to the pre-planned field trip. schedule so as not to adversely impact on the regular route schedules.
12. Inform everyone of the location of the emergency equipment, and procedure for emergency exits.

Unit Review

1. _____ causes many collisions.

2. A driver should never _____ the bus with students on the ground.

3. In keeping a safe following distance _____ second for every _____ feet of vehicle length under 40 mph. is the method for determining adequate spacing.

4. When two vehicles approach or enter an uncontrolled intersection at approximately the same time, the driver of the vehicle on the _____ shall yield the right-of-way to the vehicle on the _____.

5. A driver who follows too closely does not have enough _____ or _____ to handle emergency situations.

6. When approaching a railroad the driver must stop the bus within _____ feet but not less than _____ feet from the railroad crossing.

7. Drivers shall not _____ other buses while they are loading or unloading.

Answers

1. Backing
2. back
3. 1,10
4. left, right
5. time, distance
6. 50, 15
7. pass